

IN THE SPECIFICATION

Please amend the specification, as follows, with a marked up copy of the changes to the specification being attached hereto:

Please replace the paragraph appearing at page 1, line 14 to page 2, line 2 with the following paragraph:

C₁

Conventionally, a reforming apparatus, that performs steam reformation of a raw material to be reformed and produced a reformed gas containing hydrogen as a principal component, has been known. One of applications of the reformed gas is a fuel utilizable to generate electricity in a fuel cell but, in this case, since the carbon monoxide is poisonous to electrodes of the fuel cell, it is desired that the content of carbon monoxide (CO) in the reformed gas should be removed to a level of 100 ppm or less. Therefore, CO is removed from the reformed gas by employing, after the step of steam-reforming the raw material, a step of decreasing the concentration of CO in the resultant reformed gas by water-gas-shift reaction and a step of further decreasing the concentration of CO in the resultant reformed gas by selectively oxidizing CO, as disclosed in JPA HEI 5-251,104. However, conventionally, since the three reaction steps mentioned above are performed separately in respective apparatuses, a reforming system as a whole tends to be bulky. In addition, since heat sources for providing heat of reaction are needed separately in respective reaction steps, heat loss is large. Therefore, in the conventional reforming apparatus, it has been desired to lower the heat loss and to reduce the size.

Please replace the paragraph appearing at page 2, line 16 to page 4, line 1 with the following paragraph:

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However, the prior art reforming apparatus involves a problem that the temperature in each of the reaction units can not be suitably controlled. That is, it is known that catalytic reactions takes place in all of the above three reaction units and that there is a range of reactive temperature required in each of the reactions that take place respectively in the three reaction units. The range of reactive temperature of steam reforming reaction, which varies according to the kind of the raw material, for example, is about 400 to 1000°C, preferably, 600 to 900°C, when the raw material is a hydrocarbon such as butane, and also 250 to 400°C when the raw material is methanol. On the other hand, the range of reactive temperature required by the water-gas-shift reaction or the CO selective oxidation reaction does not vary so much according to the kind of the raw material, and the range of reaction temperature required by the water-gas-shift reaction is generally about 200 to 350°C and, preferably, 220 to 300°C, and that required by the CO selective oxidation reaction is generally about 100 to 250°C, preferably, 120 to 180°C. In general, the range of reactive temperature decreases in the order of that in the reforming reaction unit, that in the shift reaction unit, that in the CO oxidation unit. Therefore, it is necessary to control the temperature in each reaction unit so as to be in the above respective range of reactive temperature. However, the reforming reaction unit and the shift reaction unit in the above prior art reforming apparatus do not separate from each other, but continued unitarily, that is, they are functionally distinguished in that the form of reaction changes from the steam reforming reaction onto the water-gas-shift reaction as the temperature of the reformed gas lowers. For this reason, even though this reforming apparatus is capable of effectively

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C2 performing the steam reformation of methanol which requires a small difference between the reforming temperature and the shift reaction temperature, the steam reformation of hydrocarbons tends to exhibit a temperature diverting from the required temperature range during a transit from the reforming unit to the shift reaction unit and, therefore, a problem would arise with the hydrocarbon such as butane of which reactive temperature range during the steam reforming reaction is high. Also, since the prior art reforming apparatus has a laminated structure that the reformation treating layers and the combustion gas flow path layers alternate sidewise, the same reaction units tend to have a varying temperature depending on the position in the laminated structure, and specifically, a temperature difference between a position near to the outer periphery of the apparatus and a center position of the apparatus tends to be considerably large because the position near to the outer periphery of the apparatus is cooled by the air outside. Particularly, this varying temperature becomes problematic in the CO oxidation unit which has a narrow range of reactive temperature. Thus, when it occurs that some of the reaction units have a temperature diverting from the required temperature range, there is a fear that the hydrogen content in the resultant reformed gas lowers and the CO concentration would not be sufficiently lowered.

Please replace the paragraph appearing at page 10, lines 5 to 10, with the following paragraph:

C3 It is preferable to employ an air intake for introducing the fresh air into the second duct (Fig. 22). The use of this air intake makes it possible to cool only the burned exhaust gas then flowing through the second duct with the fresh air introduced into the second duct when the exhaust vent is

closed by the shutter means, and therefore the CO oxidation unit can be more preferably controlled as to its temperature.

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Please replace the paragraph appearing at page 17, lines 14 to 24, with the following paragraph:

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The reforming apparatus according to the first embodiment comprises, as shown in Fig. 1, a generally cylindrical combustion chamber 1 which serves as a heat source, surrounded by a reforming reaction unit 2 for steam-reforming a raw material to generate a reformed gas containing hydrogen as a principal component. The reforming reaction unit 2 is in turn surrounded by a shift reaction unit 3 for reducing CO, contained in the reformed gas generated by the reforming reaction unit 2, by the water shift reaction and a CO oxidizing unit 4 for oxidizing the CO component, contained in the reformed gas after treatment in the shift reaction unit 3, to thereby further reduce the CO component. The reforming reaction unit 2, the shift reaction unit 3 and the CO oxidizing units 4 are separate units and arranged in coaxial relation to each other.

Please replace the paragraph appearing at page 30, lines 3-25, with the following paragraph:

C5
The reforming apparatus according to a fourteenth embodiment will be described hereinafter. This reforming apparatus is of a structure, as shown in Fig. 15, in which in the eleventh embodiment a heat conductive material 19 having a higher heat conductivity than that exhibited by the material forming a surface of each of the reforming reaction unit 2, the shift reaction unit 3 and the CO oxidizing unit 4 is disposed on such surface. This heat conductive material 19 serves to uniformize